

Amendments to the claims:

This listing of claims will replace all prior versions and listings of Claims in the Application:

Listing of Claims:

1. (Currently Amended) A method of treating a pathogen within ~~an oral cavity~~ a periodontal pocket, the method comprising:
  - a. testing for the presence of one or more pathogens within ~~the oral cavity~~ the periodontal pocket with a culture;
  - b. selecting pulsed laser light with a wave length corresponding to an absorption spectrum of the pathogen; and
  - c. irradiating a target tissue within ~~the~~ an oral cavity with the pulsed laser light having an energy of 10 Joules/cm<sup>2</sup> or greater per pulse, wherein the pulsed laser light penetrates into the target tissue to a distance of 1.0 mm or greater and eradicates at least a portion of the pathogen within the periodontal pocket of the target tissue.
2. (Original) The method of claim 1, wherein the pulsed laser light comprises a wavelength in a range of 580 to 1800 nanometers.
3. (Original) The method of claim 1, wherein the target tissue is selected from the group consisting of hard periodontal tissue and soft periodontal tissue.
4. (Original) The method of claim 2, wherein the target tissue corresponds to a volume of soft periodontal tissue.
5. (Canceled).
6. (Original) The method of claim 1, wherein the target tissue is irradiated with the pulsed laser light through an optical fiber.
7. (Canceled).

- 2 8. (Original) The method of claim 6, wherein the optical fiber has a fiber diameter in a range  
3 of 0.05 to 3.0 mm.
- 1 9. (Original) The method of claim 1, wherein the target tissue is irradiated with a fluence of  
2 the pulsed laser light that is 350 Joule/cm<sup>2</sup> or greater.
- 1 10. (Previously Presented) The method of claim 1, wherein an area of the target tissue is  
2 irradiated with 2 Joules or more of pulsed laser light.
- 1 11. (Previously Presented) The method of claim 1, wherein an area of target tissue is  
2 irradiated with the pulsed laser light for less than 1.0 second.
- 1 12. (Previously Presented) The method of claim 3, further comprising debriding of the target  
2 tissue prior to the step of irradiating target tissue.
- 1 13. (Original) The method of claim 1, wherein the one or more pathogens include a  
2 pigmented gram (-) anaerobe.
- 1 14. (Previously Presented) The method of claim 13, wherein the pigmented gram (-) anaerobe  
2 is selected from the group consisting of *porphyromonas gingivalis* (*Pg*) and *prevotella*  
3 *intermedia* (*Pi*).
- 1 15. (Previously Presented) The method of claim 1, wherein one or more pathogens include a  
2 pigmented fungus.
- 1 16. (Original) The method of claim 15, wherein the pigmented fungus is a fungus selected  
2 from the group consisting of *Histoplasma* and *Aspergillus Niger*.
- 1 17. (Original) The method of claim 1, further comprising staining a bacteria.
- 1 18. (Previously Presented) The method of claim 1, wherein a substantial portion of the one or  
2 more pathogens is eradicated.

- 1      19.      (Canceled).
- 1      20.      (Previously Presented) A method of treating a periodontal pocket, the method  
2           comprising:  
3           a.       generating a sequence of laser pulses at an absorption wavelength; and  
4           b.       directing the laser pulses to a portion of periodontal tissue outside of the  
5           periodontal pocket, wherein the laser pulses penetrate through a volume of the  
6           periodontal tissue and eradicates bacteria within the periodontal pocket.
- 1      21.      (Previously Presented) The method of claim 20, wherein the portion of periodontal tissue  
2           is selected from the group containing of dentin, cementum, bone and gum tissue.
- 1      22.      (Canceled).
- 1      23.      (Previously Presented) The method of claim 21, wherein the laser pulses penetrate  
2           through the outer portion of periodontal tissue by a distance of 1.0 mm or more.
- 1      24.      (Original) The method of claim 20, wherein the laser pulses are generated with a  
2           Nd:YAG laser.
- 1      25.      (Original) The method of claim 20, wherein the laser pluses have energy concentrations  
2           of 17 Joules/cm<sup>2</sup> per pulse or greater.
- 1      26.      (Previously Presented) The method of claim 20, wherein the laser pulses are directed to  
2           the portion of periodontal tissue from an optical fiber.
- 1      27.      (Original) The method of claim 26, wherein the optical fiber has a fiber diameter in a  
2           range of 0.5 to 3.0 mm.
- 1      28.      (Original) The method of claim 20, wherein the bacteria is a pigmented gram (-)  
2           anaerobe.

1 29. (Previously Presented) The method of claim 20, wherein the pigmented gram (-) anaerobe  
2 is selected from the group consisting of phorphyromonas gingivalis (*Pg*), and prevotella  
3 intermedia (*Pi*) and a pigment fungi.

1 30. (Previously Presented) The method of claim 20, wherein directing the laser pulses to the  
2 portion of periodontal tissue also eradicates a portion of a pigmented fungus within the  
3 periodontal tissue.

1 31. (Original) The method of claim 30, wherein the pigmented fungus is a fungus selected  
2 from the group consisting of Histoplasma and Aspergillus Niger.

1 32. (Original) The method of claim 20, further comprising applying a staining agent within  
2 the periodontal pocket, wherein the staining agent stains for the presence of living  
3 bacteria.

1 Claims 33-42 (Canceled).

1 43. (Currently Amended) A method of treating a pathogen within ~~an oral cavity~~ a periodontal  
2 pocket, the method comprising:

- 3 a. selecting pulsed laser light with a wave length corresponding to an absorption  
4 spectrum of the pathogen; and  
5 b. irradiating a target tissue within the oral cavity with the pulsed laser light having  
6 an energy of 10 Joules/cm<sup>2</sup> or greater per pulse, wherein the pulsed laser light  
7 penetrates into the target tissue to a distance of 1.0 mm or greater and eradicates at  
8 least a portion of the pathogen within the ~~target tissue~~ periodontal pocket.

1 44. (Currently Amended) The method of Claim 43, further comprising testing for the  
presence of the pathogen within the ~~oral cavity~~ periodontal pocket.